

<i>RESPONSE D</i>	
Appl. No.: 09/992,121 Office action Dated: 07/31/2007 Response Dated: 01/31/2008	

Remarks/Arguments

Office Action Summary

Status.

1. This *RESPONSE D* is in answer to the Office communication mailed 11/16/2006.
2. a. The Office communication is final.
3. NA

Disposition of Claims.

4. Claims 1 and 3 - 14 are pending in the application.
5. No Claims have been allowed.
6. Claims 1 and 3 - 14 are stand rejected.
7. NA
8. NA

Application Papers.

9. NA
10. NA
11. NA

Priority under 35 U.S.C. § 119.

12. NA

Attachments: The Notice of References Cited (PTO-892) was provided.

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DETAILED ACTION

1. Claims 1 and 3 - 14 are pending in the application.
2. No claims are allowed.
3. The priority has an Effective Filing of 11/14/2001.

Response to Arguments

4. – 12. In paragraphs 4 through 12, the Examiner responds in part to Applicant's traverse in RESPONSE C previously filed. Applicant, to simplify the record, will comment upon the Examiner's comments in paragraphs 4 through 12 under the newly interposed rejections.

Claim Rejections - 35 USC § 101

13. Claims 1-6 stand rejected under 35 U.S.C. § 101 because the claimed invention is allegedly directed to nonstatutory subject matter. The Examiner for the rejection relies upon MPEP 2106 where:

MPEP 2106 that recites, in part:

"...USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete." (emphasis added)

- 13.1. The Examiner argues:

The method claims do not produce a useful, tangible, and concrete final result. The steps of the method claims do not produce a useful, tangible, and concrete final result. They merely recite a software algorithm, per se, which, for example, does not display, store, or otherwise provide a useful tangible output.

- 13.2. The rejection is traversed since clearly the method claims produce a useful, tangible, and concrete final result. In the present Office action dated 07/31/2007, the Examiner's rejection

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amounts to no more than a conclusionary statement and general allegation that the claimed invention does not have a useful, tangible, and concrete result.

13.3. The Examiner has failed to perform the analysis required of USPTO personnel as required by MPEP Section 2106, as follows:

In determining whether a claim provides a practical application of a 35 U.S.C. 101, ..., USPTO personnel should consider and weigh the following factors:

- a) "USEFUL RESULT"
- ...
- b) "TANGIBLE RESULT"
- ...
- c) "CONCRETE RESULT"

13.4. As to *USEFUL RESULT*, the USPTO's interpretation is that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible.

13.4.1. As provided in Claim 1, for example, the *USEFUL RESULT* is recited in the preamble and body of the claim as follows:

A computer-implemented method for dynamic emulation of legacy instructions comprising:

accessing said legacy instructions in legacy blocks, each legacy block including a plurality of legacy instructions,

for each particular legacy instruction in a particular legacy block,

translating the particular legacy instruction into one or more particular translated instructions for emulating the particular legacy instruction,

organizing the particular translated instructions into one or more particular translated blocks,

linking the particular translated blocks into a particular linked group corresponding to said particular legacy block; said linking using a link in each particular translated block to point to a location of the next particular translated block of the particular linked group,

executing the particular translated instructions in the particular translated blocks by executing the linked group translated blocks.

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13.4.2. The recitation of **dynamic emulation of legacy instructions** as bolded in the above quote together with other bolded steps in claim 1 are clearly “(i) specific, (ii) substantial and (iii) credible” and hence the requirement of *USEFUL RESULT* is met.

13.5. As to the *TANGIBLE RESULT*, the USPTO's interpretation is that the requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. The only requirement is that a “real-world result” is achieved.

13.5.1. A real-world result occurs in claim 1 (and all the claims) in that legacy instructions, which can be executed in a legacy-instruction computer, are emulated in another computer by execution of translated instructions. The tangible result is execution of translated instructions that thereby emulate the execution of legacy instructions. Emulation of legacy instructions cannot be questioned as being a real-world result. The result of the emulation is the same result achieved when the legacy instructions are executed in a legacy-instruction executing computer.

13.6. As to the *CONCRETE RESULT*, the USPTO's interpretation is that the process must have a result that can be substantially repeatable or the process must substantially produce the same result again.

13.6.1. Of course, the operation in accord with claim 1 is repeatable and produces the same result time after time. The emulation of claim 7 achieves the identical result over and over again.

13.7. In summary, the Examiner's conclusionary statement and general allegation that the claimed invention does not have a “useful, tangible, and concrete” result cannot be sustained when the analysis mandated by the MPEP is undertaken. The Examiner, by failing to undertake the

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required analysis of each of “useful, tangible, and concrete”, has not even established *prima face* support for the rejection under 35 USC §101.

Claim Rejections - 35 USC § 112

14. Claims 8-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
15. Claim 8 has been amended and the amendments are believed to overcome the rejection for dependent claims.
16. All claims are believed free of the grounds for rejection Claim 8.

Claim Rejections - 35 USC § 102

17. Claims 1, 3, 5, and 7 stand rejected under 35 U.S.C. 102(b) as being anticipated by Walters (US 5,768,593).
 - 17.1. In making the rejection the Examiner applies *Walters* '593 as follows (Section numbers added by Applicant):
 - 17.1.1. Walters discloses: 1. A computer-implemented method for dynamic emulation of legacy instructions comprising:
 - 17.1.2. accessing said legacy instructions in legacy blocks, each legacy block including a plurality of legacy instructions (**col: 4 line: 4-8 legacy blocks ... "extended block of 'qualifying' non-native code"; col: 4 line: 20-28 instructions ... codes; col: 6 line: 18-26 ... legacy code**),
 - 17.1.3. for each particular legacy instruction in a particular legacy block,
 - 17.1.3.1. translating the particular legacy instruction into one or more particular translated instructions for emulating the particular legacy instruction (**col: 7 line: 16-23; col: 7 line: 52-63**),

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- 17.1.3.2. organizing the particular translated instructions into one or more particular translated blocks (**col: 7 line: 52-63**),
- 17.1.3.3. linking the particular translated blocks into a particular linked group corresponding to said particular legacy block; said linking using a link in each particular translated block to point to a location of the next particular translated block of the particular linked group (**col: 7 line: 52-63 the entry point serves as a pointer to a next particular block (pre-defined set of non-native instructions)**),
- 17.1.3.4. executing the particular translated instructions in the particular translated (sic, blocks) by sequentially executing the linked group translated blocks (**col: 5 line: 19-30; col: 7 line: 52-63**).
- 17.2. Applicant traverses the rejection under 35 U.S.C. 102(b) for the following reasons.
- 17.2.1. Applicant's Claim 1 by way of example requires "*linking the particular translated blocks into a particular linked group corresponding to said particular legacy block; said linking using a link in each particular translated block to point to a location of the next particular translated block of the particular linked group*" as quoted from Applicant's Claim 1 in Section 17.1.3.3 above where the Examiner argues that such limitation is found in **col: 7 line: 52-63** of *Walters '593*. However, **col: 7 line: 52-63** of *Walters '593* does not describe or suggest such a limitation.
- 17.2.2. The Examiner not only relies on **col: 7 line: 52-63** of *Walters '593* to find Applicant's limitation in Section 17.1.3.3, the Examiner uses that citation for each of Applicant's elements in Section 17.1.3.1, Section 17.1.3.2, Section 17.1.3.4 and Section 17.1.4.
- 17.2.3. The Examiner's entire rejection hangs on the meaning of the citation **col: 7 line: 52-63** of *Walters '593* which is set forth as follows:

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17.2.4. “If the entry point instruction in the non-native code application does not correspond to a code block in the code cache (162-N), the recompiler 116 begins recompilation of the corresponding code block. However, if during decoding of the entry point instruction by the recompiler it is determined that the entry point instruction is one of a **predefined set** of non-native instructions to be executed by an interpreter (166-Y), then that instruction is executed by the interpreter (168). Otherwise (166-N), the cross-compiler continues with compilation of a block of non-native code (170), and then the resulting native code block is executed (step 172).” (Bold added by Applicant)

17.2.5. The **col: 7 line: 52-63** citation by the Examiner refers to an operation flow depicted in FIG 3 of *Walters* '593 commencing with a hash table NO output (162-N). If the FC instruction is one that only executes by “interpretation”, the output (166-Y) is to the Call FC Interpreter 168 whereby further instruction execution is by “interpretation” and no Code Block at all is executed. Alternatively, if the FC instruction is one that is not one of the set designated for “interpretation”, the output (166-N) is to the cross-compile code block 170. The operation is described in the Examiner’s citation **col: 7 line: 52-63**, particularly, the last four lines thereof as “... *the cross-compiler continues with compilation of a block of non-native code (170), and then the resulting native code block is executed (step 172).*” Notice in that quotation that *native code block* is singular. No reference is made to plural *Code Blocks* and no reference is made to linking of *Code Blocks* anywhere in the Examiner’s citation **col: 7 line: 52-63**. Furthermore, Applicant cannot find anything else in *Walters* '593 that in any way teaches the linking of Code Blocks in the *Walters* '593 Code Cache 118.

17.2.6. The “predefined set” as appears in the **col: 7 line: 52-63 quote of** *Walters* '593 and as quoted in Section 17.2.5 above is not the same as a “block” as used in Applicant’s claims and specification. As used in *Walters* '593, “predefined set” is a category or classification of instruction types. When anyone of the instructions of that type appears,

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the execution is immediately directed to “interpretation” as discussed in Subsection 21.2.5 above. In the Applicant’s claims and specification, a “block” is a contiguous instantiation of instructions to be executed (i.e. in a program). To the extent that the Examiner is equating the “predefined set” of *Walters* ‘593 with the “block” in Applicant’s claims, the Examiner is clearly in error.

17.2.7. All of the Claims dependent from Claim 1 are distinguished over *Walters* ‘593 in the same manner as Claim 1 and as discussed above in connection with the Examiner’s Responses to Applicants Remarks in prior *RESPONSE B* as incorporated in prior *RESPONSE C*.

17.2.8. The Remarks above pertaining to Claim 1 apply equally to Claim 7.

Examiner’s Response Paragraph 9

17.2.9. In the 07/31/2007 Office action, paragraph 9, the Examiner argues as follows (paragraph numbering added by applicant):

17.2.9.1. *The citations are merely exemplary.*

17.2.9.2. *Regarding Section 21.2.4 (Section 17.2.5 in this RESPONSE D) and Applicant's statement that 'no reference is made to plural code blocks', attention is drawn to, among many other examples and instances, (col: 3 line: 40-41), which recites "cross-compiler for converting blocks of non-native code into blocks of native code" (emphasis added).*

17.2.9.3. *Regarding section 21.2.4 (Section 17.2.5 in this RESPONSE D), and Applicant's statement that Walters '593 does not in 'any way" teach linking of Code Blocks, attention is drawn to, among many other examples and instances, (col: 5 line: 19-28), which discloses converting branch instructions into a sequence of instructions. A sequence is inherently linked such that when the block executes the comparison code and a jump is determined to be appropriate the address to which the jump is pointing to serves as the linkage to the following block.*

17.2.9.4. *Further, attention is drawn to (col: 3 line: 58-60) which discloses that translated native code blocks are executed until an exit instruction is encountered. A branch instruction may be an exit instruction to another block of code, and thus, serve as a link (pointer to another address of another code block).*

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17.2.10. Referring to the Examiner's arguments under paragraph 9 of the 07/31/2008 of the Office action as quoted above in Sections 17.2.9.1 through 17.2.9.4, the Examiner fails to identify anything additional that is disclosed or otherwise taught by *Walters '593* as it relates to linking and execution of blocks of translated instructions. The Examiner argues that *Walters '593* has plural blocks of instructions, but the Examiner does not cite anything in *Walters '593* that suggests that such translated blocks are executed using a link in one block of translated instructions to point to the location of the next block of translated instructions.

17.2.11. Specifically, the Examiner as quoted in Section 17.9.2.2 argues that (*col: 3 line: 40-41*) of *Walters '593* has "plural blocks of code." Applicant admits that *Walters '593* has "plural blocks of code", but *Walters '593* does not have and (*col: 3 line: 40-41*) of *Walters '593* does not suggest "a link in each particular translated block to point to the location of the next particular translated block" as required by Applicant's claim 1, for example.

17.2.12. Specifically, the Examiner as quoted in Section 17.9.2.3 argues that *Walters '593* (*col: 5 line: 19-28*) somehow teaches "using a link in one block of translated instructions to point to the location of the next block of translated instructions". The Examiner argues that the linkage is "inherent" stating that a "*sequence is inherently linked such that when the block executes the comparison code and a jump is determined to be appropriate the address to which the jump is pointing to serves as the linkage to the following block*". Nothing in *Walters '593* supports the Examiner's conclusion, the Examiner is merely conjecturing on what *Walters '593* might do rather than on what *Walters '593* actually teaches. Even if the Examiner's conjecture is correct, the linkages in *Walters '593* are by external operations and pointers for a block and in no way suggests "a link in each particular translated block to point to the location of the next

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particular translated block". The Examiner has not identified any link in a block in *Walters '593* and *Walters '593 (col: 5 line: 19-28)* certainly has no such disclosure.

17.2.13. Specifically, the Examiner as quoted in Section 17.9.2.4 apparently argues that *Walters '593* in *(col: 3 line: 58-60)* somehow teaches "using a link in one block of translated instructions to point to the location of the next block of translated instructions" as required by Applicant's claim 1, for example. Nothing in *Walters '593 (col: 3 line: 58-60)* suggests that "*a branch instruction may be an exit instruction to another block of code, and thus, serve as a link (pointer to another address of another code block)*". The Examiner's conjecture is not supported by *Walters '593* since *Walters '593* upon exiting a block, immediately returns execution to "interpretation" as discussed above.

17.3. The dependent claims are distinguished in the same manner as the independent claims from which they depend.

18. Claims 1, 7, 8, 10 and 12-14 stand rejected under 35 U.S.C. 102(b) as being anticipated by Mann (US 6529,862).

18.1. In making the rejection the Examiner applies *Mann '862* as follows (Section numbers added by Applicant):

18.2. *Mann* discloses: 1. A computer-implemented method for dynamic emulation of legacy instructions comprising:

18.3. *accessing said legacy instructions in legacy blocks, each legacy block including a plurality of legacy instructions (col: 5 line: 64-63),*

18.4. *for each particular legacy instruction in a particular legacy block,*

18.4.1. *translating the particular legacy instruction into one or more particular translated instructions for emulating the particular legacy instruction (Fig 3, 4, 5, and their descriptions; col: 2 line: 44-60),*

18.4.2. *organizing the particular translated instructions into one or more particular translated blocks (col: 2 line: 44-60),*

18.4.3. *linking the particular translated blocks into a particular linked group corresponding to said particular legacy block; said linking using a link in each particular translated*

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block to point to a location of the next particular translated block of the particular linked group (col: 2 line: 44-60; col: 6 line: 11-28; col: 6 line: 47-61),

18.4.4. *executing the particular translated instructions in the particular translated by sequentially executing the linked group translated blocks (col: 6 line: 11-28).*

18.5. *Applicant traverses the rejection under 35 U.S.C. 102(b) for the following reasons.*

18.5.1. *Applicant's Claim 1 by way of example requires "linking the particular translated blocks into a particular linked group corresponding to said particular legacy block; said linking using a link in each particular translated block to point to a location of the next particular translated block of the particular linked group" as quoted from Applicant's Claim 1. The Examiner argues that such limitation is found in (col: 2 line: 44-60; col: 6 line: 11-28; col: 6 line: 47-61) of Mann '862. However, (col: 2 line: 44-60; col: 6 line: 11-28; col: 6 line: 47-61) of Mann '862 do not describe or suggest such a limitation*

18.5.2. *Referring to col: 2 line: 44-60 of Mann '862, it states in lines 53 – 56 that:*

"Upon completion of the Host code block, execution control is returned to the emulator, with an indication of the next Target system instruction to execute.

18.5.2.1. It is clear from the quote from **col: 2 line: 44-60** of Mann '862 that control after one block is always returned to the emulator; it is not linked to another block as in Applicant's claims.

18.5.3. Referring to **col: 6 line: 11-28** of Mann '862, it states in the last five lines that:

"Control is then transferred to the Host code 88 at that point. The Host code 88 is then executed until the end of a block is encountered, at which time control is transferred back to the emulator with an indication of where to pick up interpreting code."

18.5.3.1. It is clear from the quote of **col: 6 line: 11-28** of Mann '862 that control after one block is always returned to the emulator for interpretation; it is not linked to another block as in Applicant's claims.

18.5.3.2. Referring to **col: 6 line: 47-61** of Mann '862, nothing therein discusses processing at the end of a block. It therefore has no suggestion about exiting one block and directly entering a new block according to a link in the block as in Applicant's claims.

18.6. Claim 7 is distinguished from Mann '862 in the same manner as Claim 1.

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18.7. All of the Claims dependent from Claim 1 are distinguished from *Mann '862* in the same manner as Claim 1.

18.8. As to Claim 8, the Examiner argues as follows:

As per claim 8, note the rejection of claim 1 above. The Instant Claim recites substantially same limitations as the above-rejected claim and therefore rejected under same prior-art teachings, but for said logical group including a first translated block, one or more next translated blocks and a last block, said linking using a linked list in said cache including a first link in the first translated block that points to a location in the cache of a next translated block, one or more next links in the next translated blocks where each next link points to a location in the cache of a subsequent one of the next translated blocks, and a last link that points to the last block of the logical group (col: 6 line: 47-61).

18.9. In *Mann '862 (col: 6 line: 47-61)*, there is no disclosure of “a first translated block, one or more next translated blocks and a last block”. Further there is no “first link in the first translated block”, there is no “one or more next links in the next translated blocks” and there is no “last link that points to the last block”. The Examiner is requested to show where such limitations are shown in *Mann '862*. They are not! Therefore, the rejection should be withdrawn.

Examiner's Response Paragraph 12

18.10. In the 07/31/2007 Office action, paragraph 12, the Examiner argues as follows (paragraph numbering added by applicant):

Regarding the above arguments, it is noted that Applicants are arguing features not claimed which are summed up in Remarks section 22.2.3.2 {repeated as Section 18.5.3.2 of this RESPONSE D}. Specifically, the claims do {sic} necessitate exiting one block and directly entering a new block. In fact, such language may raise questions of enablement. See paragraph 0026 of the Instant Application's PGPUB Specification, which discloses that control is returned to a "transfer routine" which is called at the end of each RISC block to locate the next block. The "direct" execution is not claimed, and if claimed may result in a 35 U.S.C. § 112 first paragraph enablement rejection. Mann's emulator uses the links at the end of the code to follow to and execute the subsequently linked code blocks. It is quite clear that the

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"indication of the next Target system instruction to execute" correlates to the link to the following code block to be executed.

18.11. The Examiner appears to be confused in the above quote in Section 18.10. The Examiner refers to "paragraph 0026 of the Instant Application's PGPUB" and that part of Applicant's specification is describing FIG. 3 operation that employs a XFER_SEQUENTIAL instruction operation (not being claimed) and which does not employ a linked list operation. The linked list operation that is being claimed is shown and described in connection with FIG. 4 and FIG. 5. Referring to paragraph 0032 of the Instant Application's PGPUB, for example, it states:

Rather than use XFER-SEQUENTIAL or XFER-TARGET look-up functions at the end of RISC blocks as required in the FIG. 3, the RISC code of FIG. 4 simply branches directly to the next RISC block as shown, for example, by the branch (B) to SRA instruction in RISC block 3_{R-10}₃. The branch (B) to SRA instruction in RISC block 3_{R-10}₃ avoids the XFER-SEQUENTIAL instruction at the end of RISC block 3_{R-10} in FIG. 3.

18.12. In order to make this direct operation more clear, Claim 8 has been amended to recite "said execution proceeding directly from translated block to translated block of the logical group including the first translated block, the one or more next translated blocks and the last block.

18.13. In a manner similar to Claim 8, the other independent claims 1 and 7 have similarly been amended. In light of the amendments, it is believed the Examiner will now find allowable subject matter and allowance is respectively requested.

Claim Rejections - 35 USC § 103

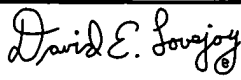
18.14. The amendments to the claims are believed to overcome all of the rejections under 35 USC § 103 for the same reasons set forth above in connection with 35 USC § 102.

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18.15. For all of the reasons above, reconsideration of all claims now in the application is requested.

Respectfully submitted,

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